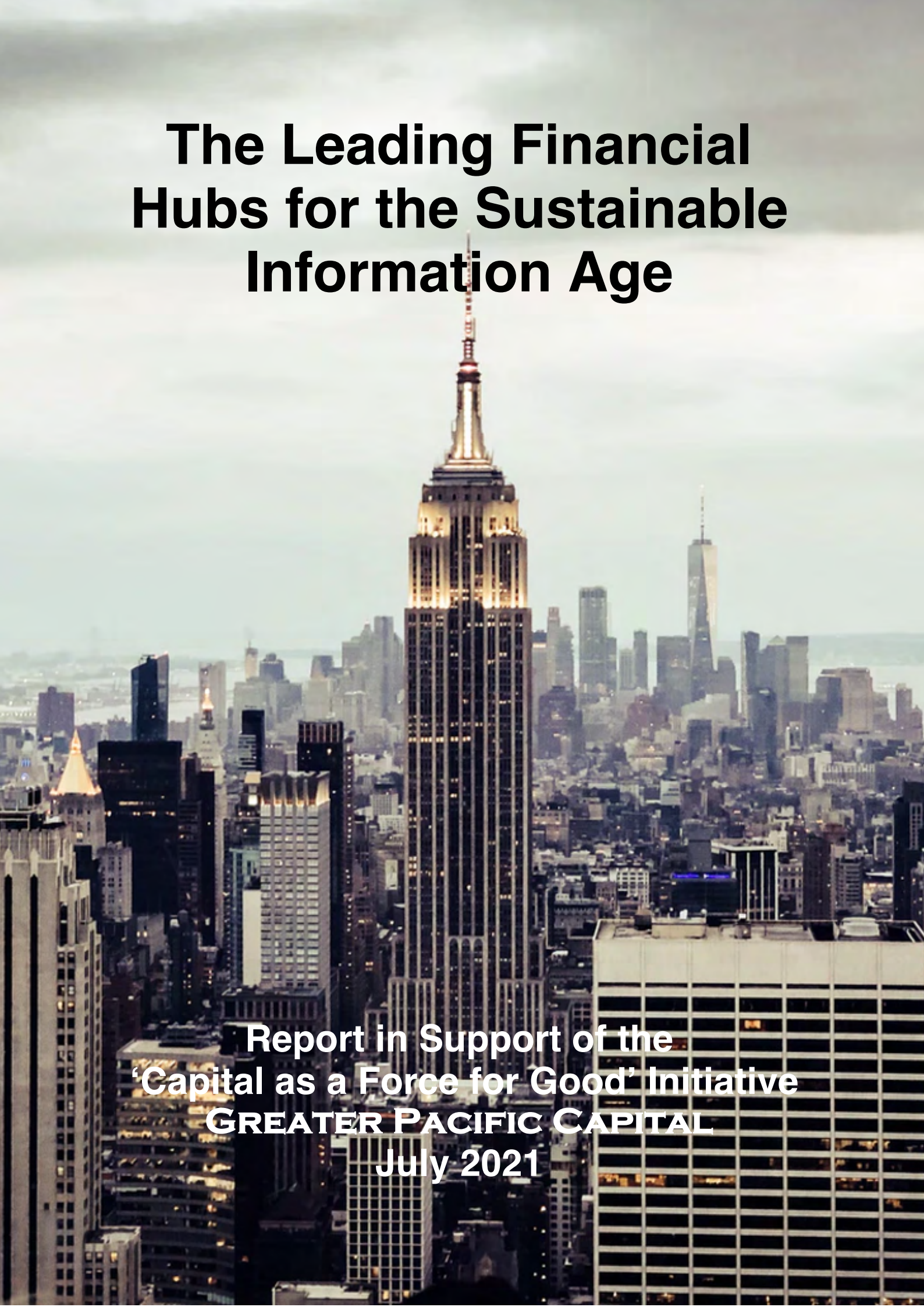
The Leading Financial Hubs for the Sustainable Information Age



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'Capital as a Force for Good' Initiative

Greater Pacific Capital

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The Leading Financial Hubs for the Sustainable Information Age

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ABOUT

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Infrastructure. Slum Transformation for Development

Financial Services. Reforming the Financial Sector

Country

India's Transformation Through to 2040

China's Potential Green Future

India's Rise: Growth Scenarios

The Future of the Commonwealth v.2.0

This research was conducted to support Force for Good's 'Capital as a Force for Good Initiative', which was launched in 2020 to establish the idea that capital can be a force for good in the world at a time of profound and multi-dimensional change in the world, engaging the world's leading financial institutions to establish what the bar for the industry emerges organically and to continue to mobilise capital to break new ground in providing finance to address the world's issues and build for a better future.

The inagurual 'Capital as a Force for Good' report, issued in December 2020, analysed 63 leading institutions across asset management, banking and insurance representing c.US$100 trillion in assets. The inaugural report identified the substantial "common ground" between these companies in doing good, as well as the new ground that the leaders among them were breaking.

The Force for Good Initiative has an active outreach program, engaging with major global financial institutions as well as development banks, and other stakeholders on the finance industry's engagement as a force for good in the world, working with major institutions creating partnerships to accelerate their efforts to tackle increasingly complex and interrelated challenges like climate change, social inclusion and sustainable development.

ABBREVIATIONS

AIIB	Asian Infrastructure Investment Bank
BNP	Bank National de Paris
ABC	Agricultural Bank of China
c.	circa
CCB	China Construction Bank
CDO	Collateralised debt obligation
CLO	Collateralised loan obligation
bn	billion
D.C.	District of Columbia
ET	Exchange traded
EU	European Union
GDP	Gross Domestic Product
GPC	Greater Pacific Capital
HSBC	HSBC Holdings plc
ICBC	Industrial and Commercial Bank of China
ICC	International Chamber of Commerce
IDA	International Development Association
IAEA	International Atomic Energy Agency
IEA	International Energy Agency
IFC	International Finance Corporation
ILO	International Labor Organization
ITU	International Telecommunication Union
IMF	International Monetary Fund
IMO	International Maritime Organization
IP	intellectual property
ISO	International Standards Organization
m	million
MUFG	Mitsubishi UFJ Financial Group
NATO	North Atlantic Treaty Organization
NGO	Non-government organization
NDB	New Development Bank
NYC	New York City
OECD	Organization for Economic Co-operation and Development
OPEC	Organization of Petroleum Exporting Countries
RBC	Royal Bank of Canada
RBS	Royal Bank of Scotland
SCO	Shanghai Cooperation Organization
SDG	Sustainable Development Goal
TIPS	Treasury Inflation-Protected Securities
tn	trillion
UK	United Kingdom
UN	United Nations
UNDP	United Nations Development Program
UNHCR	United Nations High Commissioner
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations Children's Fund
US	United States
WCO	World Customs Organization
WIPO	World Intellectual Property Organization
WHO	World Health Organization
WTO	World Trade Organization

FOREWORD

The global finance industry today is dominated by a few key financial hubs. New York, London, Hong Kong, and very few others, and these have concentrated much of the world's financial activity across banking, asset management, insurance, and capital markets, and have therefore served as nerve centres for the global economy, in some cases since the beginning of the 20th Century.

During the next decade however, the global finance industry stands to be fundamentally transformed by a series of major transitions relating to sustainability, digital technology and to geopolitics. While over the long term, these shifts will lead to the emergence of a Sustainable Information Age and the potential for humanity to thrive, over the next decade, and perhaps more, the world will need to face a series of environmental and social challenges that represent a threat to peaceful survival if not survival itself[i]. These challenges are not intractable although. However, solving these challenges will require ambitious thinking, extreme innovation and the placing of ultra-scaled 'bets'.

Given the finance industry's critical position as the allocator of nearly 90% of global net financial wealth, it has a major role to play in both solving these challenges and in facilitating the longer-term transitions which in turn will impact the global flow of funds, create new business models, open new markets, and lead to the innovation of new products and services. Incumbent financial institutions will need to make radical changes to their business models, finding themselves in stiff competition with each other and new entrants arising from these shifts in the way the world works.

The impact of these disruptions will not be restricted to financial institutions, they represent a game-changing challenge and an opportunity for the world's financial hubs as concentrators of economic and financial power and decision making. Incumbent hubs will also need to adapt to the new economic, political, and competitive realities to ensure that that the shift to the emerging Sustainable Information Age is a smooth one for them. This report aims to identify the key success factors for financial hubs to play their role in this transition and to build and maintain their own positions as centres of global wealth creation. The Force for Good Initiative believes that capital can be a force for good in the world, and financial hubs have an important role to play in facilitating the finance industry's ability to act as such as force for good in practice.

Ketan J Patel

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EXECUTIVE SUMMARY

The global finance industry today is dominated by a few key financial hubs, some of which have served as nerve centres for the global economy since the beginning of the 20th Century. During the next decade however, the global finance industry stands to be fundamentally transformed by three major transitions, which represent a game-changing challenge and an opportunity for the world's financial hubs, who too will need to adapt to the new economic, political, and competitive realities. Leading financial centres are set to see their positions shift in the league table of finance depending on how well they adapt to the realities of the emerging sustainable information age, creating both winners and losers in the next generation of global financial hubs across the world.

The Findings

Major shifts in geopolitical power, sustainability and the rise of the information era are themes defining the transition of the world from a carbon-energy based era to the next, and this has been dramatically advanced by the pandemic. This report finds that over the next three decades, through the lens of these discontinuities, the flow of capital is set to shift through new financial hubs and in innovative ways across the world. The power and resulting flow of capital favour the US, EU, China and, over time, India. New York, San Francisco, Beijing, Paris, Frankfurt, and Mumbai are set to see the most dramatic gains, with four of them taking the top slots. London, Hong Kong, Tokyo and Singapore face the largest losses and the challenge of reinvention despite their many strengths, since the flow of capital of the biggest blocs in the world will not be allowed to be diverted to flow through them. A digital world provides some opportunity for that the addressed, but not enough most likely.

The finance industry, and financial hubs, are on the brink of a major shake-up of their roles, positions, and influence in the flow of capital, with many incumbents seeding position to newcomers.

1. **Discontinuity of Sustainability, Digital and the Rise of Four Superpower Blocs by 2050.** A series of global discontinuities are transforming the world to 2050, of which three seem paramount in so far as the context of this report; the shift to the information age, the megatrend of a more sustainable model for the world including the accompanying energy transition, and the emergence of a multi-polar world driven by four superpower blocs: the US, the EU, China and India, which have the largest economies, populations and resources.

2. **These Changes Have Far Reaching Impacts for the World, and Certainly for Where and What Money Will Flow to and From.** These discontinuities have already been fundamentally changing the way businesses across all sectors need to operate, and finance is not only not an exception, it is a major force that will be required to underpin these changes.

3. **Financial Hubs as Critical Points of Conduits of the World's Trade, and These Changes Will Alter Which Ones Matter.** Financial hubs have been among the most important centres of global wealth creation in the Industrial Era and have a critical role to play in the coming transitions, and this will force the small group of global hubs that monopolise the flow of capital to reinvent themselves to maintain their relevance, which will lead to some becoming far less important as rise to take their place.

4. **Future Leading Hubs Will be Conduits of the Finance of these Superpower Blocs and for Accessing the World Population.** Future leading hubs will require more than a scaled asset base and accompanying scale in business activity and volume. Given the global scale of the challenges facing the world, future leading hubs will need to finance solutions to global issues to be relevant requiring scale and innovation in applying finance and in a world where the power of the four superpower blocs and their economics will be pivotal.

5. **The Shake-out Will Lead to a Small Group of Hubs Being Strategic and The Rest Being Distribution Hubs for Them.** As part of this transition, two different models for future financial hubs are set to emerge, one strategic, focusing on strategic decision making in the global allocation of capital, and the other, more tactical and execution oriented, serving as a base for asset gathering and the distribution of financial services. While this phenomenon is already evident in many cases, it can be expected that it will become far clearer as the world's superpower blocs collaborate and compete for position and the world's biggest issues need large amounts of capital to be mobilised.

6. **Geopolitical Power, Sustainability and Technology Favour America, the EU, China, and Over Time, India too.** New York and San Francisco, recognising the on-going power of the US, can be expected to take pre-eminent positions reflecting the importance of finance and information age technology, Beijing rises to reflect the rising economic and broader power of China, and both Paris and Frankfurt are beneficiaries of the leading scaled position of the EU, and Mumbai rises over the coming decades to join the top ten hubs.

7. **London, Hong Kong, and Singapore Face the Need to Rethink Their Strategic Relevance to the Superpower Blocs, In Particular.** Many current global financial hubs, like Hong Kong and Singapore, are set to see their positions erode in the coming decades given local and global trends, and despite its strengths and history, London is set to decline too given its declining strategic relevance based on its alienation from the EU, making it also less important to the US, its rising conflict with China, and current lack of strategic relevance to a rising India.

8. **Population and Financial Inclusion Matter and Digital Allows These To Be Accessed Across The World, Beyond the Top Hubs Too.** There are a number of strategies that today's hubs can employ to defend or even improve their relative positions, including aligning with the leading superpower blocs, allocating capital for financial and broader inclusion in developing powers and countries using digital strategies to overcome the limitations of their physical location.

1. MAJOR DISCONTINUITIES DRIVING GLOBAL CHANGE

The world is at the end of the carbon-based industrial era, and the energy transition currently underway is set to transform the world, with a majority of the planet's countries having set target dates to achieve net zero carbon emissions. Further, the worldwide asset stripping of natural resources from the planet is the result of innovation not keeping pace with demand in a globalised world, with current global resource consumption levels at over 75% greater than the Earth's estimated sustainable resource production capacity.[ii] The next 10 years are critical in determining the world's ability to survive well. This drama is unfolding during the rise of new powers with a new multilateralism with conflict brewing between great powers. It is increasingly clear that the world's current industrial economic model and the financiers and financial hubs that built it will not survive in their current form given these changes.

The world is at the end of the carbon-based industrial era. This fact is now almost universally accepted and evident in the the protests on the streets for change to the approach to the environment, in the choices of individuals on what they buy in supermarkets, in corporations as they shift their supply chains and business models to respond to these preferences and the times, in leading financial institutions as they announce new policies on what they will and will not fund alongside tens of billions and trillions of dollars of commitments to climate change, in governments as they introduce legislation to enforce new standards, and in transnational institutions that work to mobilise commitment to change from organisations around the world. A profound movement with far-reaching consequences is underway.

The sustainability mega-trend is set to transform the world. While America rolled back its commitment to climate change over the past few years, others stepped up, and following the change in its leadership, America has now reiterated its commitment to lead in managing the transition. There is widespread acknowledgement that following over 200 years of industrial development, the shift to more sustainable models of development, production,

Four major power blocs, representing over 60% of global GDP and 70% of global market cap have the potential to set the rules of engagement for the coming world order: the US, China, the EU, and India.

consumption, and living is an urgent one, and that the current way of life is not sustainable. In dramatic fashion, global commitments by governments and institutions to manage climate change and to promote the energy transition are building momentum, with 118 countries representing over 60% of global GDP having set target dates to achieve net zero carbon emissions.

Asset stripping natural resources is the result of innovation not keeping pace with demand in a globalised world. Having long passed the height of the industrial era, the level of innovation to substitute for natural resources has not keep pace with demand and has therefore led to asset stripping the planet of its resources, with asset consumption exceeding the rate at which the Earth can regenerate resources. Current global resource consumption levels are over 75% greater than the Earth's estimated sustainable resource production capacity[iii]. This has brought on the need for dramatic measures to conserve and protect, to innovate for lost natural resources, to include in development those parts of the world population left out, and to rethink the model for how we live.

World with 10 billion population exacerbating challenges. The resources and energy challenges facing the world are exacerbated by population growth which is expected to reach 10 billion people by 2050, leading to more of everything being required to clothe, feed, house and employ the global population. Global food demand for example will increase by 56%,[iv] while global power consumption is expected to double[v]. The world risks facing a period of scarcity across critical resources until the necessary scientific and technological breakthroughs are achieved.

The pandemic drove home the interrelatedness and interdependence of the world. In an added and brutal spur to change, the coronavirus pandemic having spread across the globe in months, infecting nearly 200m people within a year from the first lockdown, killing nearly four million people, and destroying c.140 million jobs and nearly US$4 trillion in economic value. Coming at the end of a decade that saw openly divisive populist, nationalist, and nativist politics, it drove home the pain of isolation and the interrelatedness of the world and the need for more inclusive growth and development within societies and across geographies. It seemed that walls and border controls could not be built to stop the pandemic, only to slow it down before it took hold anyway.

Rivalry with China has been rising but done nothing to stop China's inexorable rise. Across many of the key traditional metrics determining economic power, gross domestic product being the foremost, China's economy is growing at a rate where it looks set to overtake America a decade or so from now. But while economics ultimately underpins power, a country's power manifests itself in multiple ways: economically, militarily, political, socially, technologically, geographically, and demographically. Looking at the key metrics that capture these components, there are four major power blocs that on account of their scale and/or their growth have the potential to set the rules of engagement for the coming world order, the US, China, the EU, and India. These four blocs collectively represent nearly 70% of global market cap, 63% of global GDP, 45% of the world's population, and 37% of global trade, providing these blocs with the levers to shape the world order during the 21st Century.

Achieving the SDGs in the coming decade is critical to avoid irreparable harm to our ecosystem, our communities, and our socio-economic systems

The next ten years are critical in determining the world's ability to survive well. The globalised industrial era has been a period of unprecedented development and wealth creation, but it has also led to increasing inequality and environmental degradation. The 17 United Nations Sustainable Development Goals are the world's most comprehensive vision of what the world needs to achieve in

the coming decade in order to avoid irreparable harm to the ecosystem, communities, and socio-economic systems. These goals cover critical environmental, social and economic objectives that the world will need to achieve as a matter of survival and of creating a more sustainable platform from which to continue developing.

Digital technology points the way to an information era future. Digital technology, online and mobile communication and transaction platforms have proven to be a critical solution in crisis, enabling people to remain connected to each other for work, education, information, entertainment, supplies and more, and have accelerated the shift to a very different future from the physical one of the past. The digital transition of businesses has accelerated sharply due to the global pandemic, with the global share of customer interactions that are digital increasing from 36% in 2019 to 58% during 2020, and the percentage of products and services that are fully or partially digitised increasing from 35% to 55% over the same period[vi].

If the achievement of the SDGs provides the basis for the survival of societies and the planet at large, then the transition to the information age provides the basis for the next stage of its civilisation. This drama is unfolding during the rise of new powers heralding a new multilateralism and with conflict brewing between great powers. It is increasingly clear that the world's current industrial economic model and the financiers and financial hubs that built it will not survive in their current form given these changes.

2. LEADING FINANCIAL HUBS AND THEIR POSITIONS

Financial hubs have been among the key engines of the global economy, creating but also concentrating massive amounts of wealth. These hubs, and the finance they enable, are a product of the Industrial Age, and will need to adapt to maintain their relevance in the coming Information Age, with knowledge and intellectual property becoming key drivers of value creation across virtually all industries. In addition to the traditional metrics critical for financial hubs, future leaders' success will depend on a series of factors relating to geopolitical power, technology and innovation, and a hubs ability to address issues of global relevance.

Financial Hubs in Context

Financial hubs have been critically important throughout history providing the platform for growth and excellence in finance. It is well accepted that as more financial institutions concentrate in one locality, they become centres of excellence that attract talent, foster innovation, attract risk capital, and thereby give rise to new industries and their leaders. As in many industries, financial services activities globally have clustered into a series of hubs with a high concentration of banks, asset managers and financial intermediaries, as well large financial markets and exchanges. These hubs represent the key nodes in global financial and economic network through which capital flows and allocated. Given the sophisticated infrastructure, regulation and human capital requirements of leading financial hubs these are typically major global cities.

2021 Global Financial Hub Ranking

Rank	Centre	Change vs 2020
1	New York City	—
2	London	—
3	Shanghai	—
4	Hong Kong	▲1
5	Singapore	▲1
6	Beijing	▲1
7	Tokyo	▼3
8	Shenzhen	▲1
9	Frankfurt	▲7
10	Zurich	—
11	Vancouver	▲13
12	San Francisco	▼4
13	Los Angeles	▼2
14	Washington, D.C.	▲5
15	Chicago	▲5

Today's financial institutions are the product of industrialisation and, like those of the preceding agrarian era, face an existential threat in the shift to the information era. The Industrial Age gave rise to modern banking and the modern financial system, supplanting older financial models like goldsmith banking and merchant banking. Many of today's industry titans were founded to finance the industrial innovation and the build-out of the First (particularly in Great Britain) and the Second (in Europe and Japan) Industrial Revolutions in the 18th and 19th centuries, or to fund the expansion of a recently independent and burgeoning United States roughly between these periods. The Information Age will lead to a similar transformation in which current leaders will need to reinvent themselves or be supplanted by challengers who embrace the new models of finance. The financiers of the agricultural era did not go on to become the behemoths that financed the industrial revolutions and it should not be assumed that the current financial giants of the Industrial Age will be the ones to survive the transition to the information age.

The finance industry has a key role to play in the transition to the Sustainable Information Age. As the allocator of c.90% of the world's net liquid assets, the finance industry receives and provides the funds that enable consumers to consume, manufacturers to manufacture, traders to trade, scientists to invent and politicians to govern, resulting in a disproportionate ability to reshape the the entire global economic system.

Storied Histories: Founding Dates of Major Global Finance Institutions	
Barclays	1732
Lloyds Banking Group	1756
JPMorgan Chase	1799
Citi	1812
BNP Paribas	1820
ING	1845
Wells Fargo	1852
Santander	1857
Credit Lyonnais	1863
Mizuho	1864
HSBC	1865
Deutsche Bank	1870

For it to fulfil its potential the industry will need to fundamentally reinvent itself, financing both the huge shift away from unsustainable assets, processes and technologies while also financing the 'moon shot' investments to innovate and scale the sustainable information age alternatives, in energy, resources, medicines and more. This will in turn likely require a shift in the model of individual financial organisations, the financial hubs in which they concentrate, and the financial system as a whole.

The Information Age changes what matters for financial hubs too. As the transition to the Information Age continues to transform the financial system, it will also change the drivers of value for financial hubs, with those that fail to adapt being stuck in increasingly dated industrial era models. The industrial era hubs will assume they are powerful based on the volumes of business that they process, the subsidiaries of foreign financial institutions they host, the float of their stock exchanges and the assets under management.

Knowledge and IP emerge as key value drivers for financial hubs. In information age economies, the key drivers of value are knowledge, intellectual property, and innovation. In the tech industry, Silicon Valley was the first hub of the Information Age, home of the integrated circuit, the microprocessor, and the modern computer, and it leapfrogged the previous era's lower tech industrial hubs in terms of relevance. The same drivers and forces can be expected to impact financial hubs too.

The financiers of the agricultural era did not finance the industrial revolutions and current financial giants cannot be assumed to remain leaders in the information age

The world's financial hubs are set to split into those with global power positions and others. The superpower blocs are naturally positioned to gain the leading positions stemming from their political and economic positions, with the rest of the world's hubs becoming de facto distribution centres for financing and trading, with their ranking based on the volume of their capital flows. The most powerful hubs will naturally tend to the former, the superpower blocs, and will be home to constituent financial institutions with high degrees of innovation and ambition, being the place where strategic decisions are made and products and services are originated. These leading hubs will fund the Sustainable Development Goals and the technologies and systems that will enable the transition to a very different future, and in doing so will capture the most value, using other hubs as distribution centres.

Today's financial centres will be split between those that make strategic decisions on the allocation of global capital and those that distribute for them

Leading Financial Hubs Determined by Global Power Position in a Rapidly Emerging Sustainable Information Era

Which financial centres will lead this transition and emerge as the most powerful hubs of finance in the future? The answer depends on a complex series of interconnected factors. However, geo-political and geo-economic factors will be the important context within which innovation and adaptation to the mega-trends of sustainability and digitisation will be played out in a highly competitive battle between countries and regions, and their financiers and financial hubs.

Today's financial hubs are the legacies of empires and superpowers. London rose to prominence as the global centre of trade and finance with the rise of the British Empire, just as New York's own emergence as a global finance hub coincided with America's rise to superpower status at the turn of the 20th Century. Hubs clearly do not exist independently of the countries within which they sit and the positions, ambitions, capabilities and resources of their host countries are critical factors that determine their relevance, rise and fall. So, geography, history, and politics matter in determining success; where hubs are located, how they fit into their host countries, the power of those countries in their regions and the world.

Five Key Strategic Factors of Position

The key factors that impact the ranking of financial power, and therefore of the hubs that manifest that power, include the following:

1. **Superpower Legacy.** Political and economic superpowers attract wealth and trade and their financial centres become global hubs as a result. And while the flow of power across the world ebbs and flows over time, hubs' positions appear to be sticky. Amsterdam rose to become the most important financial centre in Europe when the Netherlands became the foremost maritime and economic power in the world in the late 16th and 17th Century, a position that the city held on to for over a century after the Dutch Republic itself had fallen back into geopolitical insignificance. The rise of other powers erodes position, as London's rise to primacy in the wake of the rise of the British Empire demonstrated.

Today's financial hubs are the legacies of empires and superpowers … so can London and New York survive as the world's key hubs if they were to lose geopolitical and geo-economic power?

2. Of course, political decisions can also undermine and erode positions and while London's status as a leading global financial centre survived the collapse of the British Empire - leaving it with global distribution from its imperial days and with access to the biggest trading bloc in the world, the EU - Brexit has now cut London off as a key beneficiary of EU trade flows, siphoned off its regional clout and undermined its geopolitical positioning, with an estimated US$1.6 trillion of capital shifting away from London and certain key functions, skills and talent too[vii]. Separately and of note it is becoming clear that even after a few decades of investment, money alone is not enough to establish a global hub, and so despite their best efforts, the Middle East's financial hubs, while important to their countries and the region, remain marginal in terms of their importance to the global flow of capital. Without a strategic plan to remain relevant it is possible that London may decline into a similar position.

Countries and regions that are politically and economically assertive, placing big bets and with big risk-taking capacity stand to capture a greater share of power and value geopolitically which America did last century and China is doing now

Current and Emerging Power Blocs. If historical positioning is important, future positioning is of course even more so. US hyperpower status at the turn of the century has given way to a more bipolar world with China emerging as a counterweight to American power. Next to these two is already the EU as one of the most powerful trading blocs in the world and this garners it much clout, regardless of its gradual political integration or not. Looking ahead, India's economic rise and increasing geo-political importance to both America and the EU make it a natural partner in Asia as they seek to balance China. The rise of these four powers is a critical factor in the development of a more multi-polar world over the coming decades. While other regions may well rise in the longer-term, these four blocs are best positioned to be the key geo-strategic actors through to 2050, ensuring that their financial hubs will be centres of global economic activity in line with each blocs' interests and priorities.

3. **Geo-strategic Assertiveness.** Countries and regions that are politically (and economically) assertive, placing big bets and with big risk-taking capacity stand to capture a greater share of power and value geopolitically. The US demonstrated this assertiveness in the 20th century, and China is demonstrating it today, vigorously extending its global influence – with its the Belt and Road Initiative, in the South China Sea, through African and Latin American investments – while defending its homeland from external interference (through economic protectionism and control

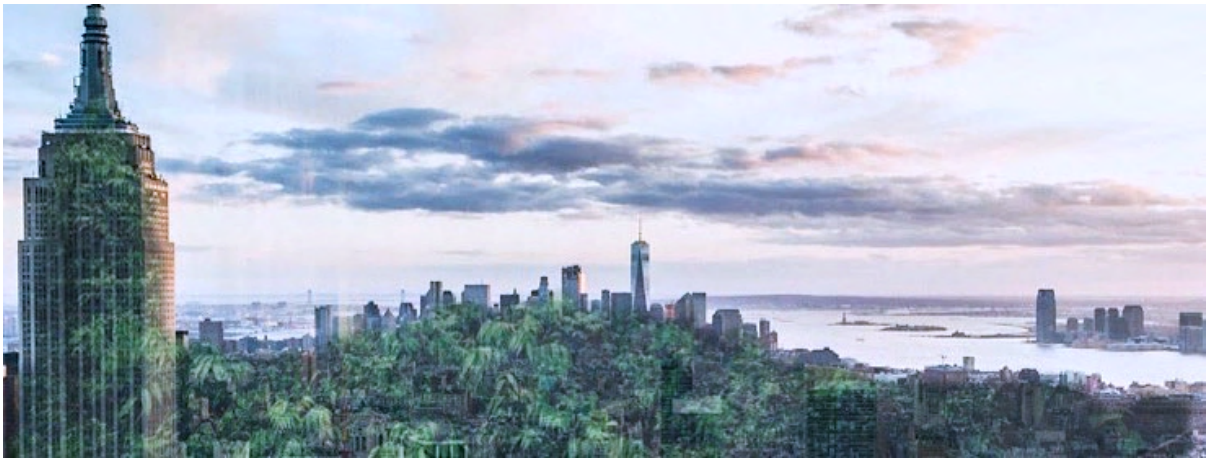
over the flow of information), allowing it to project significantly more global power than others, even if they (like the EU) have larger economies for now. Powerful players that can successfully promote their standards, their businesses and their capital abroad will capture a greater share of global financial activity for their centres.

4. **Relevance.** A financial hub's relevance depends not only on its absolute size in terms of assets managed or deployed, but on the impact its actions have on the world. Successful financial hubs will therefore be the centres from which capital is deployed to address issues of global relevance. These issues represent large and growing investment opportunities in their own right, and hubs that position as global centres for these themes will attract further capital and IP as a result. for example, full financial inclusion for the 70% of the global population that is un- or under-banked could create US$100 trillion in financial assets over the next 50 years[viii], while funding the climate transition represents an over US$130 trillion opportunity[ix]. Having a significant impact on these themes will require countries, hubs, and companies to deploy capital at scale in a series of big bets that lead the industry and influence long-term global capital flows.

5. **Innovation.** Of course, future financial hubs' positions will depend on their ability to adapt to the major discontinuities facing the world. As laid out above, the disruptions created by the shift to the information age will place significant strains on financial services institutions, financial hubs and the financial system as a whole. Financial institutions will need to adapt to a digitised, decentralised and more automated world, competing against a range of new tech-enabled entrants, requiring them to develop and adopt innovative technologies of their own Further, solving issues of global relevance will require hubs and the companies that they host to develop new specialised products, services, and business models, which again will require these companies to innovate. The hubs they operate in will either be conducive to these changes and attract further aligned financial institutions fostering leadership in exploiting opportunities or resistant to change and promote a more conservative membership model.

The transition to the future will see current hubs change their relative positions but the race to leadership to meet the needs of the information age is still an open contest in a world of big bets to address major issues and opportunities, global innovation and rising geo-political and geo-economic competition

3. THE FINANCIAL HUBS OF THE FUTURE



The leading financial hubs of the Information Age will be determined by 11 key factors relating to the mega-trends of digitisation, sustainability, and shifting geopolitical power, as well as to innovation, access to capital and strategic decision making. Based on these factors, the list of leading financial hubs in 2050 looks very different to todays. While New York City is still projected to be the world's leading hub, other current major hubs like Hong Kong, Singapore, and London too, will see their relevance decline against better positioned competitors like Beijing and the financial centres of the EU.

The wide range of political, economic, technological, social and environmental factors identified represent the key determinants of success for leading financial hubs in the future, which lead to 11 key drivers, including:

1. **Stock of Economic Power of Countries and Blocs.** The absolute scale of the economic might that the hub represents and/or finances relative to others.
2. **Economic Power Assertion of Countries and Blocs.** The global economic power assertion that the hub facilitates across the world.
3. **Strength of Asset Base.** The scale of a hub's asset base and financial 'firepower'.
4. **Strategic Decision Making.** The volume of capital globally directed or controlled from the hub.
5. **Financial Innovation.** Delivery of financial innovations to meet market needs and capitalise on opportunities.
6. **Funding Big Bets.** The scale of risk-taking and big bets being taken in a hub to solve major global issues.
7. **Sustainability Transition Finance Capacity.** The funding capacity and propensity to fund major sustainability transitions from the hub.

8. **Scaling New Technologies and Businesses.** The ability to foster innovation and rapidly scale breakthrough technologies and businesses.
9. **Digital Finance and Inclusion.** The ability to drive financial inclusion through digital finance to ensure its future relevance to the world, domestically and/or globally.
10. **Multi-Lateral Institutions and Thought Leadership.** The hub's connection and access to major institutions and thought leadership that will drive innovation, standards and have a bearing on the direction of future global capital flows.
11. **Business Environment, Human Capital, and Infrastructure.** Traditional success factors for financial hubs that will continue to be relevant in the future.

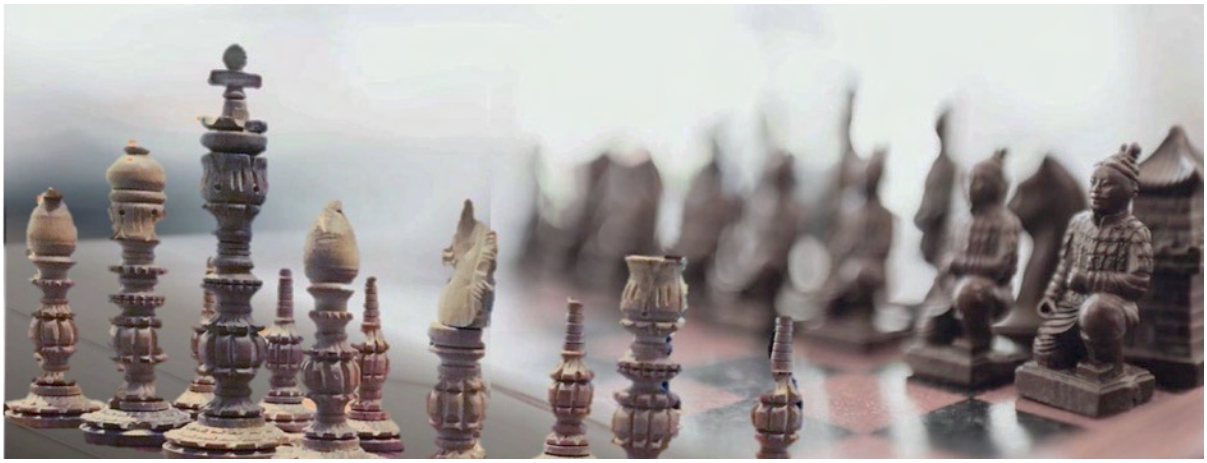
These factors are critical determinants in the flow of global capital in the future, leading to major shifts in global financial power and in the position and value of hubs from which it is exercised. The table below summaries the potential implications for the ranking of global financial hubs in 2050 as a result.

Table 1: Sustainable Information Age Financial Hub Ranking 2050

City	Country	Overall Rank	Economic Power	Power Assertion	Asset Base	Strategic Decision Making	Financial Innovation	Funding Big Bets	Transition Finance	Scaling New Technologies	Digital Finance Inclusion	Multi-Lateral Institutions / Thought Leadership.	Business, Human Capital, Infrastructure
New York	United States	1	2nd	4th	2nd	1st	1st	1st	3rd	2nd	6th	2nd	1st
Beijing	China	2	1st	1st	1st	2nd	NA	NA	1st	3rd	2nd	10th	7th
Paris	France	3	6th	3rd	3rd	3rd	4th	11th	4th	10th	5th	4th	12th
San Francisco	United States	4	9th	14th	NA	9th	4th	5th	NA	1st	14th	NA	11th
London	United Kingdom	5	12th	12th	7th	4th	2nd	3rd	2nd	5th	NA	6th	2nd
Frankfurt	Germany	6	4th	2nd	14th	9th	NA	10th	10th	NA	3rd	NA	14th
Shanghai	China	7	5th	5th	5th	9th	NA	NA	6th	9th	4th	NA	6th
Tokyo	Japan	8	8th	NA	6th	4th	NA	NA	8th	6th	NA	5th	5th
Mumbai	India	9	3rd	6th	NA	NA	NA	NA	14th	NA	1st	NA	NA
Washington	United States	10	7th	10th	10th	4th	NA	NA	NA	11th	13th	1st	NA
Shenzhen	China	11	10th	9th	8th	4th	NA	NA	13th	14th	9th	NA	NA
Boston	United States	12	NA	NA	11th	4th	NA	NA	11th	4th	NA	NA	NA
Munich	Germany	13	11th	7th	13th	9th	NA	NA	5th	NA	NA	NA	6
Chicago	United States	14	NA	NA	NA	NA	3rd	NA	NA	12th	NA	NA	8th
Amsterdam	Netherlands	15	NA	8th	NA	NA	NA	4th	NA	13th	NA	NA	10th

Source: GPC Research, subcategory rankings only list hubs in the top 15 positions, See appendix for methodology

4. THE SUCCESS FACTORS FOR FUTURE FINANCIAL HUBS



The relative position of today's leading financial hubs will change over time in response to the changing geopolitical, economic, and technological realities they operate in. Further, the relative importance of the key factors themselves are also subject to change as the world is transformed. While geo-political and geo-economic realities will determine which hubs have the potential to lead in the long-term, they alone are insufficient to determine the future winners. Among other critical factors some, like those relating to sustainable finance, provide an early mover advantage to those hubs that can lead in these themes, while others, like the ability to support innovation, provide more lasting advantages.

Financial hubs' performance and relative position against each of the 11 success factors have been measured using a set of specific criteria and metrics described below, alongside an explanation of each criteria's relevance in shaping a hub's ability to be a future leader of the global finance industry.

1. Stock of Economic Power of Countries and Blocs.

As China's economic power rises, its financial hubs are set to rise to the fore … and alongside the hubs in the US, EU and India, these will form the financing centres of the future

After more than a century of US and allied dominance, global economic power is expected to shift significantly in the coming decades, away from the status quo in which countries representing less than 10% of the global population generate nearly half of global GDP. China is set to overtake America in absolute GDP term in the 2030s, while India's huge population and rapid development are expected to drive its emergence as a fourth global power alongside China, the US and the EU. The shifts to 2050 are likely to lead to significant changes in the power and influence of the financial hubs from which their economies and financial systems are managed.

Table 2: Economic Power (Nominal GDP) of Global Financial Centres by Country and Bloc.

Rank	Country	Primary Hub(s)	2020 GDP US$tn	2030 GDP US$tn	2040 GDP US$tn	2050 GDP US$tn
1	China	Shanghai, Beijing	14.7	23.2	36.0	53.3
2	US	New York City	20.9	27.6	33.3	40.2
3	EU	Frankfurt, Paris	15.2	18.7	22.0	25.9
4	India	Mumbai	2.7	5.7	10.3	18.4
5	Japan	Tokyo	5.0	5.8	6.1	6.4
6	Germany	Frankfurt	3.8	4.7	5.2	5.8
7	UK	London	2.7	3.7	4.2	4.7
8	France	Paris	2.6	3.4	3.9	4.4
9	Brazil	Sao Paulo	1.4	2.3	2.8	3.5
10	Canada	Toronto, Vancouver	1.6	2.6	3.0	3.5
11	South Korea	Seoul	1.6	2.1	2.7	3.3
12	Australia	Sydney	1.4	2.2	2.6	3.3
13	Italy	Milan	1.9	2.4	2.6	2.8
14	Spain	Madrid	1.3	1.9	2.2	2.5
15	Netherlands	Amsterdam	0.9	1.3	1.5	1.8

Source: IMF World Economic Outlook 2021, PWC, GPC Research

2. Economic Power Assertion of Countries and Blocs.

For the US and India, the EU and its member states, are set to become their key ally given the EU's scale as a major consumer, investor and trader and the essential counterweight to the huge market and assertiveness of China

A country's actual economic and political power assertion is also critical to its position in finance. In the 20th Century, the imperial model of power projection by way of land acquisition and overseas military presence was replaced by predominantly economic power projection through trade and investment, with countries' hubs serving as nexus points for the global flow of capital, goods and services, channelling their host countries' power and influence in the world.

Table 3: Global Economic Power Assertion (Trade and Outward Direct Investment) of Hubs by Host Country Ranking

Country	Primary Hub(s)	2020 Trade US$bn	2030 Trade US$bn	2040 Trade US$bn	2050 Trade US$bn	2020 ODI US$bn	2030 ODI US$bn	2040 ODI US$bn	2050 ODI US$bn
European Union	Paris, Frankfurt	13,348	16,640	19,565	23,005	719	846	995	719
China	Shanghai, Beijing	5,372	9,107	13,481	19,955	308	456	676	308
United States	New York	5,801	7,458	9,011	10,886	302	365	441	302
India	Mumbai	1,189	2,358	4,223	7,563	21	38	69	21
Germany	Frankfurt	3,359	4,063	4,533	5,057	182	203	226	182
United Kingdom	London	1,718	2,229	2,537	2,887	43	49	56	43
France	Paris	1,709	2,167	2,441	2,750	97	109	123	97
Netherlands	Amsterdam	1,415	2,029	2,355	2,733	253	294	341	253
Canada	Toronto	1,077	1,716	1,991	2,311	118	137	159	118
South Korea	Seoul	1,270	1,635	2,052	2,576	43	54	67	43
Japan	Tokyo	1,408	1,599	1,681	1,766	214	225	236	214
Italy	Milan	1,165	1,396	1,512	1,638	28	30	32	28
Spain	Madrid	841	1,269	1,458	1,676	67	77	89	67
Brazil	Sao Paulo	496	623	760	926	16	19	23	16
Australia	Sydney	579	930	1,101	1,304	8	9	11	8

Source: GPC Research, PwC, IMF, EU data added

3. Strength of Hub Asset Base

Beijing's lead in terms of its scale of assets – across asset management, banking, and insurance – is expected to widen further as China's absolute share of global output continues to grow to be allied

The scale of a hub's asset base can be measured by the amount of financial activity it supports, including its total assets under management, its loan volumes and the gross written premiums it facilitates. Scale matters given that the amount of capital required to fund the 'Great Transformation', to the sustainable Information Age, is vast[x]. The SDGs alone face a funding shortfall of at least US$40 trillion through to the end of the decade, while the world needs to spend US$131 trillion on the energy transition by 2050 to hit Paris targets on global temperature rise.[xi] Solving these challenges requires radical mobilisation and allocation of the world's capital flows by leading financial hubs.

Table 4a: Strength of Asset Base, Assets Under Management of Global Financial Hubs 2020-2050

			2020	2030	2040	2050
Rank	Hub	Country	AUM (In US$tn)	AUM (In US$tn)	AUM (In US$tn)	AUM (In US$tn)
1	Beijing	China	26.7	42.0	65.3	96.6
2	New York	United States	37.4	49.2	59.5	71.9
3	Paris	France	24.3	32.2	36.3	40.8
4	London	United Kingdom	16.5	22.3	25.4	28.9
5	Boston	United States	14.7	19.4	23.4	28.2
6	Zurich	Switzerland	4.5	7.8	13.6	23.5
7	Shanghai	China	6.4	10.1	15.6	23.2
8	Tokyo	Japan	18.0	20.6	21.6	22.7
9	Shenzhen	China	6.0	9.4	14.7	21.7
10	Toronto	Canada	8.9	14.2	16.5	19.1
11	Philadelphia	United States	7.2	9.5	11.5	13.8
12	Washington	United States	5.7	7.5	9.1	11.0
13	Frankfurt	Germany	6.6	8.1	9.0	10.1
14	Charlotte	United States	5.2	6.8	8.3	10.0
15	Munich	Germany	4.8	5.9	6.6	7.3

Table 4b: Strength of Asset Base, Loan Origination of Global Financial Hubs 2020-2050

			2020	2030	2040	2050
Rank	Hub	Country	Loans (In US$tn)	Loans (In US$tn)	Loans (In US$tn)	Loans (In US$tn)
1	Beijing	China	11.8	18.6	28.8	42.7
2	Washington	United States	3.7	4.9	5.9	7.1
3	Shanghai	China	1.9	3.0	4.6	6.9
4	Paris	France	4.0	5.3	6.0	6.7
5	McLean	United States	2.6	3.4	4.1	5.0
6	Tokyo	Japan	3.8	4.3	4.6	4.8
7	New York	United States	2.4	3.2	3.8	4.6
8	London	UK	2.5	3.4	3.8	4.4
9	Toronto	Canada	1.5	2.4	2.8	3.2
10	Sydney	Australia	1.2	2.0	2.5	3.2
11	Seoul	South Korea	1.5	1.9	2.4	3.1
12	Madrid	Spain	1.3	2.0	2.3	2.6
13	Charlotte	United States	1.2	1.6	1.9	2.3
14	Amsterdam	Netherlands	1.1	1.6	1.8	2.1
15	Frankfurt	Germany	1.2	1.5	1.6	1.8

Table 4c: Strength of Asset Base, Gross Written Premiums of Global Financial Hubs 2020-2050

			2020	2030	2040	2050
Rank	Hub	Country	GWP (In US$bn)	GWP (In US$bn)	GWP (In US$bn)	GWP (In US$bn)
1	Beijing	China	282.6	444.9	690.8	1022.6
2	Tokyo	Japan	235.8	269.4	283.2	297.7
3	Paris	France	187.7	248.5	280.0	315.5
4	New York	United States	157.7	207.6	250.8	303.0
5	Munich	Germany	155.3	190.7	212.7	237.3
6	Zurich	Switzerland	131.4	228.1	395.9	687.3
7	Seoul	South Korea	118.7	154.2	193.5	242.9
8	Shenzhen	China	117.8	185.4	288.0	426.3
9	Taipei	Taiwan	89.5	147.4	227.8	321.6
10	Trieste	Italy	78.9	100.5	108.9	117.9
11	London	UK	78.5	106.2	120.8	137.5
12	Osaka	Japan	73.1	83.5	87.8	92.3
13	Toronto	Canada	70.4	112.4	130.4	151.4
14	Hanover	Germany	67.9	83.4	93.0	103.8
15	Shanghai	China	53.3	83.9	130.3	192.9

Source: CapitalIQ, Assets and AUM for different financial services companies with over US$100m in assets with the primary office in a particular city.

4. Strategic Decision Making

New York, Beijing, and the EU have the concentration of leading financial institutions to make them strategic decision hubs, while most other hubs are better suited, in the future, to play their role as centres for asset gathering and distribution

In Information Age businesses, the locus of power lies with the "brain" that drives information flows rather than where the underlying goods and services are produced and, in the case of the finance industry, power will lie where strategic decisions are made which in turn drives capital flows. The leading financial hubs of the future will be distinguished as the places where strategic decisions are made on the application of capital and the flow of global funds, rather than the places and nodes through which the funds are routed. In businesses, this strategic decision-making lies in the corporate headquarters where senior management strategize, plan and set the rules and targets for the rest of the organisation to execute against. While many banks have large presences in multiple regional centres and may amass significant market shares and people there, these centres' role is one of distribution rather than decision making.

Table 5: Strategic Decision Making (Headquarters of the World's Largest 30 Financial Institutions) by Hub

Rank	Hub	Country	No. of Institutions
1	New York	United States	5
2	Beijing	China	4
3	Paris	France	3
4	Boston	United States	2
4	London	UK	2
4	Shenzhen	China	2
4	Tokyo	Japan	2
4	Washington D.C.*	United States	2
8	Charlotte	United States	1
8	Frankfurt	Germany	1
8	Klagenfurt	Austria	1
8	Philadelphia	United States	1
8	Munich	Germany	1
8	Newark	United States	1
8	San Francisco	United States	1
8	Shanghai	China	1
8	Washington	United States	1

Bloc	No. of Institutions
US	13
China	7
EU	6
India	0

Sources: CapitalIQ

*Note: * Includes Mclean, Virginia*

5. Financial Innovation

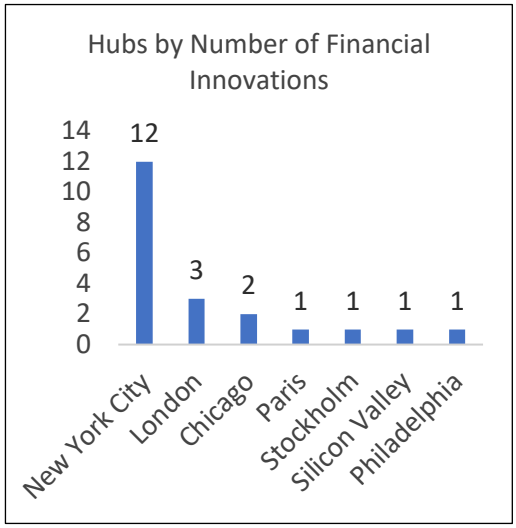
In terms of financial innovation and its application at scale, New York remains the preeminent financial hub … with others trailing far behind

The ability to innovate to address a growing set of issues and challenges indicates relevance and is a key requirement of financial institutions in a changing world, allowing the application of capital at scale to address global issues. The major financial innovations of the post-war era have been driven by investors seeking to manage risk while maximising returns in response to economic, political, social, and technological events and trends. The next wave of financial innovation will need to solve a series of more fundamental issues around the valuation of the global commons and the pricing of externalities while adjusting to a world that is fully digital. This will likely give rise to the creation of new generations of financial products, processes, and institutions.

Table 6: Major Modern Era Financial Innovations by Hub, Selected

Financial Innovation	Location	Year
Sustainability linked finance	Paris	2019
Flash trading	New York City	2009
Blockchain	Unknown	2008
Green bonds/loans	Stockholm	2007
Weather derivatives (ET)	Chicago	1999
Peer to peer lending	London	2005
TIPS	New York City	1997
Credit default swaps	New York City	1994
Exchange traded funds	New York City	1993
Direct banking	London	1989
CDOs/CLOs	New York City	1987
Interest rate swaps	New York City	1981
Indexed mutual funds	Philadelphia	1976
Options/futures	Chicago	1973
Money market funds	New York City	1971
Electronic trading platforms	New York City	1971
Mortgage-backed securities	New York City	1968
Debit cards	London	1967
Credit cards	New York City	1958
Venture capital	Silicon Valley	1957
Leveraged buyouts	New York City	1955
Hedge funds	New York City	1949

Sources: GPC Research



6. Funding Big Bets

American financial institutions stand in a unique place in finance in their ability to make big moves that others lack the scale or the will to make

Funding the transition to a sustainable future and completing the move to the Information Age will require the greatest global shift in the flow of funds in history, financing new activities, defunding others and enabling the emergence of new technologies, energies, cities, corridors and models. The world's leading financial institutions are accordingly placing a series of increasingly 'big bets' to participate in this transition, announcing billion- and trillion-dollar financing commitments that will see their own businesses and priorities transformed in the coming decade. The leaders in the next generation of new products and services will define global financial services, ensuring the continued relevance of the hubs that support them.

Table 7a: Funding Big Bets - 15 Largest Sustainable Finance Commitments Globally

Rank	Company	Hub	Country	Amount (In US$tn)	Overview of Commitment
1	JP Morgan Chase	New York City	United States	2.5	Address climate change and advance sustainable development
2	Bank of America	Charlotte	United States	1.5	Low-carbon and other sustainable businesses
3	Citi	New York City	United States	1.0	Environmental finance, education, affordable housing, healthcare, inclusion, diversity and equality
4	Morgan Stanley	New York City	United States	1.0	Sustainability solutions for climate and inclusion initiatives
5	HSBC	London	United Kingdom	1.0	Help clients transition to net zero carbon emissions
6	Goldman Sachs	New York City	United States	0.8	Climate change, economic opportunities for under-served people
7	ING Group	Amsterdam	Netherlands	0.7	Paris climate goals
8	Wells Fargo	San Francisco	United States	0.5	Financing to sustainable businesses, projects and research programs
9	RBC	Toronto	Canada	0.5	Sustainable finance for climate and inclusion initiatives
10	Banco Santander	Madrid	Spain	0.4	Mobilise green finance
11	Bank of Montreal	Montreal	Canada	0.4	Sustainable finance, small businesses and women entrepreneurs, and inclusion initiatives
12	Credit Suisse	Zurich	Switzerland	0.3	Sustainable financing such as renewable energy and Green Bonds.
13	Deutsche Bank	Frankfurt	Germany	0.2	Sustainable and climate-friendly solutions
14	Société Générale	Paris	France	0.1	Energy transition projects
15	Barclays	London	United Kingdom	0.1	Green financing to accelerate transition to a low-carbon economy

Table 7b: Funding Big Bets - Total Commitments by Hub

Rank	City	Country	Amount (In US$tn)
1	New York	United States	5.3
2	Charlotte	United States	1.5
3	London	United Kingdom	1.1
4	Amsterdam	Netherlands	0.7
5	San Francisco	United States	0.5
6	Toronto	Canada	0.5
7	Madrid	Spain	0.4
8	Montreal	Canada	0.4
9	Zurich	Switzerland	0.3
10	Frankfurt	Germany	0.2

Sources: Press releases, Reuters

Bloc	Big Bets in US$bn
US	7.3
EU	1.7
China	0
India	0

7. Sustainability Transition Finance Capacity

America's ability to finance the transition of energy and climate dwarfs others, and New York is the likely hub of its spokes, the EU has the scale and potential to do that too which, if it did, would make it a great power in the coming sustainable era

The next decade may well be the deciding one in determining our ability to safeguard a liveable climate, limiting global warming to no more than 1.5^0C by 2050. Financing the broader climate transition will require a number of critical components. Firstly, a scaling of renewable energy capacity and accompanying technologies, electrified transport and heat, energy storage and carbon capture. Secondly, given the likely inadequacy of current technological solutions to meet the Paris Agreement climate targets, further energy innovation will be required, making energy R&D a critical necessity. Thirdly, the global long-term shift of capital to and energy source that is clean with net zero emissions, abundant, more functional and near free.

Table 8a: Transition Finance, AuM Committed to Net Zero, (July 2021) by Financial Hub

Rank	Hub	Country	NetZero Committed Assets in US$bn AuM	Banking Assets	Asset Ownership	Total
1	London	U.K.	5,754	7,216	3,887	16,857
2	New York	United States	8,935	3,373	5	12,313
3	Paris	France	1,627	4286	1444	7,357
4	Philadelphia	United States	7,100	-	-	7,100
5	Munich	Germany	2,539	-	3362	5,901
6	Zurich	Switzerland	2,600	2095	633	5,328
7	Boston	United States	4,510	0	-	4,510
8	Madrid	Spain	-	3376	-	3,376
9	Charlotte	United States	-	2819	-	2,819
10	Frankfurt	Germany	-	2051	-	2,051
11	Stockholm	Sweden	510	659	327	1,496
12	Atlanta	United States	1,404	-	-	1,404
13	Amsterdam	Netherlands	1,350	-	-	1,350
14	Hamburg	Germany	967	-	-	967
15	Copenhagen	Denmark	634	-	146	780

Bloc	NetZero Assets US$bn
US	27,102
EU	21,839
India	0
China	0

Table 8b: Transition Finance Clean Energy Investment (2010-2019) by Country*

Rank	Hubs	Country	2010-2019 Clean Energy Investments in US$bn
1	Beijing, Shanghai	China	818.0
2	New York City,	United States	392.3
3	Tokyo	Japan	210.9
4	Frankfurt	Germany	183.4
5	London	United Kingdom	126.5
6	Mumbai	India	90.0
7	Milan	Italy	82.9
8	Sao Paolo	Brazil	60.6
9	Paris	France	49.9
10	Sydney	Australia	47.6
11	Madrid	Spain	37.3
12	Toronto	Canada	33.5
13	Amsterdam	Netherlands	31.5
14	Mexico City	Mexico	24.8
15	Brussels	Belgium	22.3

Bloc	Clean Energy Investment in US$bn
China	818.0
EU*	428.4
USA	392.3
India	90.0

Table 8c: Transition Finance Energy R&D (2010-2019) By Country*

Rank	Hubs	Country	2010-2019 Clean Energy R&D in US$bn
1	Beijing, Shanghai	China	43.4
2	New York City	United States	7.8
3	Tokyo	Japan	4.3
4	Mumbai	India	4.1
5	Frankfurt	Germany	2.2
6	Paris	France	1.5
7	London	United Kingdom	1.1
8	Sydney	Australia	1.0
9	Sao Paolo	Brazil	0.9
10	Amsterdam	Netherlands	0.9
11	Toronto	Canada	0.8
12	Milan	Italy	0.8
13	Madrid	Spain	0.5
14	Stockholm	Sweden	0.4
15	Brussels	Belgium	0.2

Bloc	2010-19 Clean Energy R&D in US$bn
China	43.4
USA	7.8
EU*	6.4
India	4.1

Sources: Net Zero Asset Managers Initiative, Net Zero Asset Owners Initiative, Net Zero Banking Initiative, Company disclosures, UNEP
**EU data is sum of German, French, Netherlands, Italy, Spain Sweden and Belgium*
*** While renewable energy spending in many countries does not appear to be concentrated in financial hubs at this time, being driven in centres of research or regionally where renewable capacity is being deployed, a country's leading financial hubs will be among the ultimate beneficiaries of the energy transition that these investments enable.*

8. Scaling New Technologies and Businesses

In a future where technology matters across all sectors, it is no surprise that Silicon Valley and other tech hubs supersede major finance centres as innovation ecosystems

In the transition to a more sustainable, inclusive, information based global society, financiers will need to place big bets on high potential, yet unproven technologies, companies and business models, while also funding the transition of existing businesses. Despite the existence of now over 125 'unicorns' valued at over US$1bn, fintech remains in its infancy relative to the financial sector as a whole; the fifteen largest digital-only 'challenger' banks in the US offering online checking accounts have an estimated combined valuation of c.US$45bn, but a market share of only c.10%.[xii] Given this nascency, a financial centre's ability to foster innovation and entrepreneurship and to rapidly scale potential future winners is a far better indicator of its potential as a future hub than the current stock of fintech companies residing within it.

Table 9: Scaling New Technologies and Businesses (Innovation Rankings) by Hub

Rank	Hub	Research Innovation Sub-ranking	Innovation Economy Sub-ranking	Innovation Ecosystem Sub-ranking	Total Number of Unicorns	Number of Fintech Unicorns
1	San Francisco	3	1	1	163	34
2	New York	1	11	2	57	15
3	Boston	2	10	4	17	2
4	Tokyo	10	2	15	6	3
5	Beijing	8	3	11	62	3
6	London	4	18	3	16	15
7	Seattle	14	9	9	6	1
8	Los Angeles	9	19	6	8	1
9	Washington D.C.	5	15	12	1	-
10	Raleigh-Durham	7	14	13	2	-
11	Paris	6	12	20	12	1
12	Amsterdam	11	22	7	4	2
13	Chicago	15	23	5	14	3
14	Singapore	18	16	8	6	-
15	Copenhagen	12	27	14	-	-

Sources: Global Innovation Hubs Index 2020], Unicorn List from https://www.cbinsights.com/research-unicorn-companies, updated 07/07/21

9. Digital Finance and Inclusion

Finance begins with the individual before the money enters the financial system and so as the world moves towards mass financial inclusion, population matters, and in this regard, America and the EU will likely cede ground to China and India

Nearly 70% of the global population is financially un or under-served. Digital technology is critical to reach them and allows them to be served at a cost affordable to customers and sustainable for providers. The ability to deliver mass digital financial services at scale will be key determinants for accessing and serving the 10 billion people projected to inhabit the planet by 2050, and therefore of the future relevance of these companies, and the hubs that they inhabit. Based on global demographic changes and the spread of digitisation over the next 30 years, today's financial hubs will need to expand their geographic coverage significantly in order to serve the world's future customers.

Table 10: Digital Finance and Inclusion (Digitally included population) by Country 2017-2050

	Country Rank 2017	Digitally Included Pop. in m	Country Rank 2050	Digitally Included Pop. in m
1	China	560.5	India	1,562.6
2	European Union	396.7	China	1,254.5
3	United States	206.5	European Union	783.5
4	Germany	58.2	United States	391.3
5	India	53.1	Nigeria	352.9
6	Japan	53.1	Indonesia	276.1
7	Russian Federation	46.8	Pakistan	251.5
8	United Kingdom	44.4	Brazil	214.1
9	France	37.2	Bangladesh	180.1
10	Korea, Rep.	34.3	Philippines	142.5
11	Italy	34.1	Mexico	136.9
12	Brazil	29.3	D.R. Congo	134.3
13	Iran, Islamic Rep.	29.0	Ethiopia	132.2
14	Bangladesh	26.6	Tanzania	125.3
15	Spain	26.3	Russia	120.3

Source: World Bank, Global Findex Database, UN population estimates

10. Multi-Lateral Institutions and Thought Leadership

The US and EU are home to the most powerful multilateral institutions in the world, conferring the potential for significant advantages in policy making and influence, advantages that challengers like China recognise they will need to build

Given the challenges facing the world today are beyond the remit of any one country, much less company, to solve, cooperation between states and within industries will need to become the norm in the future. In this regard, hubs that provide linkages to policy makers and influencers or provide opportunities for multiple stakeholders to collaborate will have a competitive edge in the future. Key examples include the presence of multi-lateral institutions, linkages to governments to coordinate policy-making and the presence of think tanks and knowledge institutions to develop and spread new ideas. China's effort to lead, host and provide anchor funding in the development of two major development institutions in the AIIB and the NDB reflect the importance of this lever of influence.

Table 11: Multi-Lateral Institutions, Thought Leadership and Levers of Change - Global Hubs by Engagement and Outreach

Rank	Hub	Country	Key Institutions
1	Washington DC	United States	World Bank Group, IMF, Think tanks, IFC, IDA
2	New York	United States	UN Secretariat, UNICEF, UNDP, New agencies
3	Brussels	Belgium	EU Commission, NATO, WCO, Political conferences
4	Paris	France	UNESCO, OECD, IEA, ICC
5	Tokyo	Japan	UN University
6	London	United Kingdom	IMO, Commonwealth
7	Geneva	Switzerland	ISO, ILO, WHO, WTO, UNHCR, WIPO, ITU, International Red Cross, Multiple NGOs
8	Vienna	Austria	OPEC, IAEA
9	Cairo	Egypt	Arab League
10	Beijing	China	AIIB, NDB, SCO, Silk Road Fund

Source: Global Cities Index (A.T. Kearney, Foreign Policy and the Chicago Council on Global Affairs) Political Engagement Ranking

11. Business Environment, Human Capital, and Infrastructure

Business environment, infrastructure and human capital will continue to be important, but these factors alone will be insufficient to determine a hubs ability to attract capital flows

Finally, of course, Information Age financial hubs will also need to continue to excel on many of the metrics that have determined the success of their industrial age predecessors. Factors like the general business environment (consisting of the rule of law, political and social stability, and the regulatory framework) human capital (including flexible labour markets, education and the ability of a hub to attract and retain talent) and infrastructure (consisting of the built-up environment as well as the digital and communications infrastructure), all of which were key drivers of current era financial hubs, will continue to be important characteristics that Information Age financial centres will need to deliver on in the coming era.

Table 12: Business Environment, Human Capital, and Infrastructure Ranking of Major Financial Hubs

Overall Ranking	Hub	Country	Business Environment Sub-Ranking	Human Capital Sub-Ranking	Infrastructure Sub-Ranking
1	New York	United States	1	1	1
2	London	United Kingdom	2	2	2
3	Hong Kong	Hong Kong	3	3	5
4	Singapore	Singapore	6	5	4
5	Shanghai	China	9	7	9
6	Tokyo	Japan	13	9	3
7	Beijing	China	8	10	8
8	Chicago	United States	5	8	NA
9	Geneva	Switzerland	4	12	NA
10	Amsterdam	Netherlands	7	NA	10
11	San Francisco	United States	14	13	6
12	Paris	France	NA	6	15
13	Zurich	Switzerland	10	NA	NA
14	Frankfurt	Germany	11	NA	NA
15	Copenhagen	Denmark	12	NA	NA

Source: Global Financial Cities Index 2021

5. RESULTS: OVERVIEW OF SHIFT IN POSITION

The global changes underway indicate a series of potentially dramatic shifts in the role of financial institutions and the financial hubs that host them. As the world transitions to the Sustainable Information Age in the coming decades in a series of stages, the relative positioning of the world's leading financial hub will be severely impacted. While, all of the major financial hubs within the four global superpower blocs of the US, China, the EU and India stand to benefit, China - on account of its growing share of the global economy and the resulting geopolitical power - will most likely see a major shift in its position. Current leading hubs outside of these power blocs on the other hand will see their relevance fade over time as they find themselves on the periphery of global economic power and strategic decision making.

The factors laid out above, taken as a whole, will determine the likely leading financial hubs of the Sustainable Information Age, with today's leading hubs and new challengers jockeying for position not only as their own performance along key factors rises and falls over time, but also as the relative importance of the factors themselves shift.

In a world that will be increasingly defined by the presence and actions of four competing and potentially collaborating superpower blocs, 'macro' matters, increasing the importance of underlying economic power, and its effective projection for the relevance of future financial hubs. This has always been the case of course, with economic power underpinning political and military might in great powers throughout history.

The Transition in Context

The list of the leading global financial institutions has long correlated with shifts in power of countries and blocs:

- The 1980s were dominated by major European banks reflecting the region's post-war prosperity, and scaled American banks secured their place too,
- The 1990s reflected the rise of Japan and its industrial trading model.

- By the first decade of the 2000s, the Europeans and Americans had begun to erode the Japanese position.
- Following the Global Financial Crisis and the bail outs, by 2010, the EU emerged with leading banks alongside a few consolidated Americans.
- By 2020, the leading financial institutions were Chinese vying with American financial institutions, reflecting the rising rivalry between the two.

Table 14: Top Ten Global Financial Institutions by Decade (by Total Assets)

1980	1990	2000	2010	2020
Credit Agricole	Sumitomo	Deutsche Bank	BNP	ICBC
B. of America	Dai-Ichi Kangyo	BNP	Deutsche Bank	CCB
Citi	Fuji Bank	Tokyo-Mitsubishi	HSBC	ABC
BNP	Credit Agricole	UBS	Barclays	JPMorgan
Deutsche Bank	Sanwa	B. of America	RBS	Bank of China
Credit Lyonnais	Mitsubishi	Sumitomo	B. of America	MUFG
Soc. Gen.	Barclays	HypoVereinsbank	MUFG	B. of America
Dresdner Bank	Natwest	Norinchukin	JPMorgan	BNP
Barclays	Deutsche Bank	Dai-Ichi Kangyo	Credit Agricole	HSBC
Dai-Ichi Kangyo	Industrial Bank	Sakura	ICBC	Credit Agricole

What this means for the future leaders in finance is a function of the macro themes that drive the world – geopolitics, sustainability and the Information Era - and the financial institutions that rise to the challenge. The hubs that house these leading financial institutions will also be leaders and will create the conditions that allow financiers to flourish in addressing the macro issues and opportunities.

The Transition to the Future

The results of the dramatic changes underway in the next generation of shifts indicate a potentially dramatic shift in the role of financial institutions and the financial hubs that host them. These shifts will lead to a fundamental change in the relative strength of financial hubs over the coming decades, with each ten-year period broadly reflecting a different phase of the global shift to the sustainable information age and a multi-polar power world:

I. **Beginning of the Great Transformation (2021-2030).** An extension of current power for the 'Big Three' financial centres of New York London and Tokyo for the first decade to 2030, with a drop in status already clear for London and Tokyo, as they shift to being more like manufacturing and distribution or local-international hubs than truly global hubs. Hubs *within* power blocs jostle for position and, depending on central policy decisions, can swap positions in the league table, for example, between Paris and Frankfurt, and Beijing and Shanghai, and an increased importance for Washington DC.

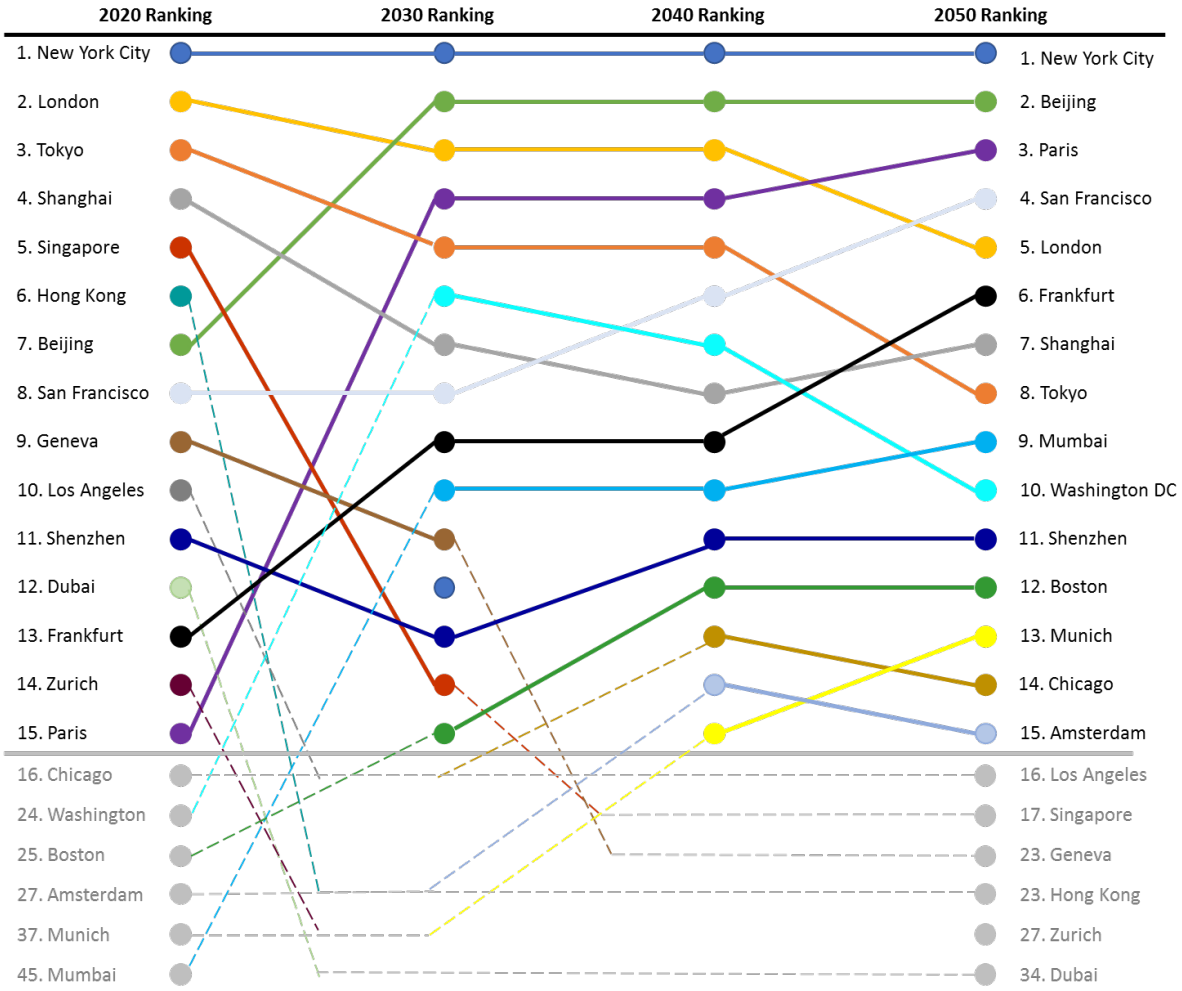
II. **Shifting Positions to Power, Relevance and Scale (2031-2040).** The rise to greater relevance of the hubs of China and tech hubs such as Silicon Valley and the relative decline of unaligned and less

geopolitically significant hubs such as London and Hong Kong reflect the shift in power, while the US and EU and their key hubs remain powerful players.

III. **New Financial Hub Power Structure for the Sustainable Information Age (2041-2050).** A new architecture for the funding of the world emerges, dominated by America, China, and the EU, and sees the entry of India, for its geopolitical and economic positioning, while also evidencing a prominent position for San Francisco given its importance in innovation and technology, with older hubs such as London and Tokyo remaining important but as distribution or domestic-regional centres.

The resulting positions of the world's 15 most important financial hubs during each of these phases is captured below:

Table 13: Top 15 Global Financial Hubs by Decade



Even a cursory glance at the table above makes it evident that the economic power backing a hub will be an increasingly critical driver of its positioning. In a world that is facing a series of fundamental challenges that require both technological breakthroughs and the deployment of mass capital to fund them and their subsequent roll-out, economic power and the strategic decision making to deploy it matter, becoming critical prerequisites without which financial hubs (and the countries that host them) will struggle to maintain their relevance.

Other factors, like human capital and innovation will matter too, of course, and are the reason why New York City is well placed to remain the world's leading financial hub in 2050, despite China having by then long overtaken the US as the world's largest economy.

Importantly, hubs outside of the superpower blocs will struggle to maintain their positions without alignment and so while in 2020 the list of top ten financial hubs still included five hubs that were outside of the four emerging power blocs, by 2050 only Tokyo and London will remain in the group (with their positions diminished), at least partially due to the fact that they are the financial centres of two of the ten largest economies in the world at that time.

6. OBSERVATIONS ON THE FUTURE OF LEADING FINANCIAL HUBS

The changing balance of world power in the rise of Asia, and the ensuing multi-polar world order, the transition to an information era and the shift to a much-needed sustainable model for the world's people, leads to the rise of new and powerful blocs, countries, financiers, and hubs that host them.

Implications of the Power Shift Underway

The analysis points to the following interesting potential outcomes:

- **The world's current pre-eminent hub, New York, has the established base and scale to continue** to be at the centre of global capital flows, particularly given its increasing focus on innovation, sustainability, and digital technologies, and London's advantages maintain its position too, for a while.
- **In a world that is shaped by geopolitical power, sustainability and technology, America is well positioned with both New York and San Francisco** as two of the world's most powerful hubs in their fields, others that can catch up on one or more of these fronts include the EU and China.
- **America, the EU and increasingly China, as well as their cities, emerge as the dominant players** across many categories, reflecting their countries' continued economic power and the depth of capital in their domestic markets. With India increasingly showing the potential to join that group as an Asian power.
- **Being part of the global system, linked to multilateral institutions, trade flows and trading blocs matters** and in this regard some, such as London and Hong Kong, have hurt their positions for local political reasons, jeopardising their relevance in an interconnected world that relies on relationships in politics and economics.
- **Countries with multiple financial centres such as the US, EU and China have the chance to create a hub and spoke model** with one core hub (such as Beijing for China) and satellites (such as

Shanghai and Shenzhen for Beijing) and gain advantages that others cannot replicate, particularly as all three are much like continents with diverse industries that matter to the future of a sustainable information era.

- **Given the requirements of power, scale and strategic decision making, many face a relative demotion from global leadership positions to regional distribution centres** and are likely to be centres for pooling capital and distributing products, but not strategic allocators of capital that solve the world's biggest problems, London is the most affected in this regard despite its history and so many advantages.
- **Some hubs, like Shanghai or Tokyo, have yet to focus on the broader topic of sustainability much at all**, and risk falling behind on the next generation of finance that the leaders in this space are currently developing.
- **Population and financial inclusion matter for countries or blocs that can navigate out of poverty** and in this regard financial inclusion provides the potential for China and India to create the biggest consumer base and therefore financial users in the world.
- **Distribution or regional centres are at risk as standards rise for governance** and hubs such as Hong Kong or Singapore could fall outside of the top 15 entirely, from 4th and 5th place in 2020 respectively, reflecting their status as a distribution centre for financial services, lacking scaled domestic markets, local champions, and innovators of their own. And providing a safe haven is a value that can be expected to decline as international standards rise with ESG becoming widespread and as tax advantages are reduced through international treaties, needing them to find a new basis for their relevance.
- **Local politics has an impact on position especially if it leads to withdrawal from the major power blocs** and despite its current pre-eminence, London is widely expected by its central bank and also by international institutions to suffer a relative decline given the effective contraction of it reach and influence following the UK's departure from the EU's common market, which is unlikely to be compensated by increased growth from trade and investment with other power blocs and countries.
- **National politics matter too in determining which hubs fail and which succeed.** Shanghai has traditionally been China's commercial capital but the centralised nature of power in China ensures that its banking giants are both state-owned and located in the country's capital Beijing, ensuring that Beijing captures the greatest share of the country's financial flows**,** while Hong Kong risks being set aside entirely as a hub for China's finance industry.
- **The EU is a pivotal power player in global rivalry between powers given its scale, and the location of its pre-eminent hub(s) will likely depend on policy.** While Frankfurt today remains continental Europe's leading financial hub, Paris ranks higher in terms of banking, debt markets, and asset management, as well as leading in sustainable financing, factors that could push Paris, to become the EU's leading finance centre in the coming decades. However, Frankfurt's role is underpinned by EU policy as the host of the European Central Bank and and may well remain pre-eminent unless the EU consciously allows a market shift to occur.
- **Power based on trade and domestic scale and economics infer international strength to hubs** and can transform formerly regional hubs, like Paris and Frankfurt, into ones that concentrate the financial firepower of large domestic markets and regions and transform them into important

international financial centres in their own right, something that the EU and China are well placed to do.

- **The new hubs in the Middle East have much to do to be more than regional hosts** to the branches of the world's largest financial institutions, it is not yet clear that given the new paradigm of sustainable development and the information era, that these are financial centres as opposed to merely hosts for foreign companies. However, their countries' sovereign wealth funds have a potentially critical role to play in establishing these hubs as powerful players in their own right.
- **Despite the growing attention being given to a financial centre's 'sustainability', this is *not* a key driver** of it being a successful top league financial hub in the future. Rather than being an input, sustainability is the outcome of a hub supporting sustainable businesses and these businesses having the risk appetite to be a scaled allocator of global capital as a strategic allocator of that capital.
- **In the digital information age, technology hubs present a real challenge to the current breed of financial hubs** and hubs such as Silicon Valley are mass 'owners' of the global interlinked user, as such they are a short step away from influencing these users' in their allocation of their funds, as well as hosting the next generation of innovative fintech businesses.
- **Two competing models are emerging between the EU and the US, which will affect positioning.** Europe has led sustainable finance to date, nascent though this segment is, and is increasingly being bold in writing the rules of engagement to force institutions in the bloc to embrace the future. Leading American institutions have begun competing with one another in launching bold super-scaled environmental and social sustainability initiatives, reflecting their more market driven approach and a culture of risk taking. It is unclear which approach will win out and is likely that the two may be highly complementary as great powers.
- **Virtualisation and the free flow of information and capital across digital networks will de-emphasise the importance of a hub's physical factors** like location and infrastructure over time to some extent. However, as the finance industry's instinct to encourage its people to work from physical offices following the ebb of the coronavirus pandemic shows, financial hubs are unlikely to become totally virtual. Nevertheless, digital and remote work cultures give rise to the potential establishment of a network of hubs working together, and in the process creating a powerful bloc of hubs with complementary assets that provide them with an advantage they would not have individually.
- **Ultimately, the winning hubs and financial institutions are likely to be those that create a new and superior system of wealth creation** that is better suited and more relevant to the major challenges of creating and funding the future of a sustainable, inclusive and information age economy. it is unclear whether the EU's approach will achieve this or America's will.

Strategies for Maintaining Position in a World with Superpower Blocs

This shifting balance of global power, economic might and international capital flows will have fundamental implications for the relative position of hubs, particularly for those that are located outside of the four power blocs. These distribution-regional or "supporting" hubs will need to develop

strategies to compensate for the relative macro-economic headwinds that they will face relative to hubs located within the blocs.

While it highly unlikely that the macro-economic advantage of the four power blocs can be overcome, there are a number of strategies that hubs can employ to defend their position as leading global financial centres, and at the least to punch above their weight in an increasingly competitive world. Potential strategies, albeit with real challenges to execute, include:

1. **Drive GDP growth.** Given the increasing importance of macro-factors in determining the future potential of financial hubs the most effective means of improving their position would be to to drive GDP domestic GDP growth. However, given the absolute economic scale of the four emerging power blocs, with GDPs of c.US$20-50 trillion each, most other regions would need to grow their own countries' GDP many times over for their hubs 'domestic markets' to represent a meaningful share of global economic activity.
2. **Align with Power Blocs.** As an alternative to competing directly with the power blocs and their hubs, financial centres, particularly regional ones, can collaborate with power blocs, helping them to extend their often-limited geographic reach by acting as a regional partner for the bloc's capital flows and strategic business. The UK determining how to do that with the EU would markedly change London's future position.
3. **Become a Regional Champion.** Alternatively, hubs can embrace their regional advantages without allying to a particular power bloc, serving as a distribution focused financial centre for distribution and asset gathering serving all countries and blocs. This strategy can attract capital and financial flows at scale, while accepting that global strategic power is not an option. This may be the default future of current leading financial hubs outside of the four major power blocs, such as London, Singapore and Tokyo.
4. **Attract Foreign Flows and Companies.** Attracting international activity through a pro-business regulatory environment, stimulus, investments and subsidies could have an important impact on a hub's success in attracting and retaining businesses and capital but is unlikely to last unless their neighbours fail to keep up as the world embraces good governance and sustainable practices. For example, a well-funded and highly developed city-state like Singapore may well seek to directly incentivise financial institutions, through tax and other measures, to do business there, and thereby maintain a position in the global top ten in the coming decades and this could be successful as long as its neighbours do not learn how to change their models to catch up.
5. **Develop Financial Inclusion Strategies.** None of today's leading hubs are geographically well-positioned to serve the billions of people being financially and digitally included in the coming decades, providing an opportunity for disparate hubs to compete on technology and innovation to become a centre for global digital banking serving far flung places around the world. This provides an opportunity for the digitally advanced hubs such as Stockholm, Zurich, Singapore and Sydney to increase their importance.
6. **Become an IP Centre.** Hubs with strong technology bases have the potential to become IP centres driving value in fintech development, drawing on the tech industry, academia and others to drive financial innovation. For example, London and Tokyo have the depth of academia and research to generate ground-breaking IP that can be leveraged for position.

7. **Develop Virtual Power, Policy and Engagement Networks.** Hubs without leading international and multi-lateral institutions headquartered there can build virtual networks that connect institutions from around the world for engagement and investment. China has demonstrated its ability to fund multi-lateral institutions such as the UN and WHO, and secure influence in doing so.
8. **Create Global Financing Solutions.** Many of the world's challenges appear intractable and seem to be unsolvable by capital in their current state. Ambitious hubs can focus on the development of innovative financing solutions and models for these challenges and position themselves at the intersection of the world's priorities, attracting and deploying global capital flows. These are solutions well suited to hubs with a stock of innovative financiers and well-developed information flows across the world, something that London and Singapore with Hong Kong's talent could well do.

Most of these strategies are of course not mutually exclusive, and to pre-empt the broader changes in the world and to stem their likely loses, financial hubs would likely seek to execute multiple strategies in parallel**.** Most hubs however will likely need to prioritise one or two of these to execute well and thereby maintain relevance in a world in which global power and wealth is increasingly segmented into distinct blocs. Major power blocs will also, no doubt, work to block their positions from being undermined and so likely also pursue these strategies, which would certainly be a positive impact for the world as financiers and hubs the world over compete to be relevant to the world.

A Note on Local Sustainability: Necessary… But Not Sufficient

Sustainability is a megatrend that will require financial hubs to have a critical mass of scaled innovative financiers, supported by its country's power position and its own positioning to make a difference to the position of a hub in the global league table.

Most metrics used to measure leadership in sustainable finance focus on factors like the presence of sustainable infrastructure, current levels of sustainable finance and financial regulation, rather than other factors critical for a hub's *future* leadership positioning, such as the level of innovation there or the ability to place big and strategic bets.

With regard to the resulting overweighting of sustainability factors, it is important to note that:

1. **Sustainable Infrastructure is a 'Hygiene Factor', Not a Differentiator.** Simply put, while being a sustainable city or hub is an increasingly important factor for any city or hub seeking to deliver a high quality of life to its inhabitants and to encourage economic activity, being the world's 'greenest' city, based on factors like smart infrastructure and low carbon solutions in public transportation does not make one a leading finance, tech or even a sustainability hub. The fact that cities like London or New York City are not at the top of major 'liveability' or 'quality of life' rankings does not appear to have reduced their ability to attract highly skilled workers or financial institutions[xiii].
2. **The Level of Sustainable Finance Activity to Date is Immaterial.** While sustainable finance is growing rapidly, the actual volumes remain a rounding error in global financial terms: cumulative

green bond issuance surpassed US$1 trillion in 2020, but still represents less than 1% of the total global bond market. Current sustainable finance volumes (and rankings) therefore are a poor indicator or future hub activity: Amsterdam is currently a top five global centre for sustainable finance in the world, but the US$5 trillion of sustainable finance commitments announced during 2021 by the 'Big Four' US banks this year already exceeds the total assets of the entire Dutch banking sector.

3. **Sustainable Finance Rules and Regulatory Environment Cannot in Themselves Foster Risk Taking and 'Big Bet' Financing.** A supporting regulatory environment and rules regarding robust ESG requirements and systems, sustainable finance standards and classifications and reporting, are often mentioned as critical for fostering the growth of sustainable finance activities and products. While the creation of a level playing field and increased transparency are of course ultimately beneficial for competition, just like the adoption of standards can increase business activity, it is unclear whether 'top-down' regulatory led approaches to finance will create more growth than market driven mechanisms driven by the industry itself. China lags only behind the EU in terms of the volume of sustainable finance regulation, but practises like ESG adoption and other measures are still in their infancy there relative to many other markets. While rules will certainly matter, a culture of taking risk and placing big financial bets is and has been a critical factor in the success of financial institutions.

7. CONCLUSION

The three fundamental shifts – the shift in geo-economic power, the shift to sustainability and the shift to the Information Age – impacting the world today, represent global discontinuities that will require businesses across all sectors to change the way they operate, and finance is no exception.

The DNA of finance industry leaders in the future will undoubtedly be a very different one than that of the financial giants that financed and helped shape the world during the 20th Century. The extreme nature of the world's position with concurrent streams of change at play in geo-politics, sustainability and a digital era signal the need for a new breed of financiers and financial hubs from which they operate.

Power – economic, political, and even military – will likely be the key determinant of position for financial hubs in the future, as it has in history, and the macro-drivers point to the emergence of four winners at the bloc level by 2050, the US, EU, China, and India. Among these blocs, the current incumbent leading financial hub, New York, remains a powerful force, but stands to lose significant ground relatively speaking to Beijing, powered by a rising China, and may well be overtaken by China, unless it manages to stall China. This would require grand strategy to conceive an effective strategic cooperation between America, the EU and India. While it would appear that India's population more or less ensures its eventual rise by 2050, it will need the assistance of its allies to make that more sure, and over the next decade or two the EU is the key partner that America needs to align with to ensure the pre-eminence of its position and of democracies in the lead up to 2050 given China's scale and drive. Stalling China is likely only a temporary position given its scale and may well buy the time to find the common ground between the four superpower blocs.

Hubs, particularly services hubs, are increasingly both physical and virtual, reflecting the social and digital changes taking place in the world today, and this is also true for the future of finance. These changes create opportunities for financial centres to overcome geographic constraints and reach far corners, driving mass financial inclusion and building customers the world over. No financial centre today has defined this game yet but it is becoming clearer which centres have a strong hand to play and which ones do not. The latter will need to be even more innovative to succeed, and the most ambitious of these may well succeed, despite the giants they play among.

In a time on the brink of an era shift, history shows that capital is the key ingredient that allows peoples to build, and in the next three decades there will be an additional two billion people to build for, mass inclusion to achieve for the majority that populate the world's poorer countries and

states, alongside building anew for a more sustainable world, and this is the game of those with power, scale, ambition. Those that finance these changes will be the leading financial institutions and hubs of the future.

ANNEX

I. Methodology

A hub's overall rankings was determined by awarding points based on ranking in each of the 11 subcategories. The top ranked hub in each subcategory was awarded a maximum of 15 points.

Subcategory point allocation

Points were awarded within a category as per the below, with the weighting of each category for the purposes of determining a total score changing by decade to reflect the changing influence of each of the key drivers over time.

1. Economic Power of Host Countries and Blocs (Weighting: 5-21%). Points awarded to countries pro-rata their actual GDP. Country points distributed to hubs pro-rata as per the "Country Allocations" described below.
2. Power Assertion of Host Countries and Blocs (Weighting: 5-21%). Points awarded to countries pro-rata their actual trade and ODI, respectively. Total points to countries based on the average of trade and ODI points awarded. Country points distributed to hubs pro-rata as per the "Country Allocations" described below.
3. Strength of Hub Asset Base (Weighting: 7-10%). Points awarded to hubs prorated to each actual US$ value of AuM, loans and GWP in a given year. Total subcategory points based on a weighted average of three categories with loan points weighed 50%, AuM weighted 30% and GWP weighed 20%.
4. Scaling New Technologies and Businesses (Weighting: 5-14%). Points awarded to hubs based on both input and output factors, being awarded for (i) overall innovation ranking (inverse to rank order) and (iii) based on the number of unicorns in hub (pro-rated to 1st ranked hub). Total subcategory points weighted 30% to innovation ranking and 70% to unicorn.
5. Financial Innovations (Weighting: 10%). Points awarded to hub pro-rata to the number of innovations developed there.
6. Strategic Decision Making (Weighting 10-12%). Points awarded to hubs pro-rata to the number of headquarters located there.
7. Transition Finance (Weighting: 4-10%). Points awarded to (i) hubs pro-rata to 2021 NetZero AUM, and to countries pro-rata to actual (ii) total clean energy investment 2010-2019, and (iii) actual energy R&D 2010-2019. Country points distributed to hubs pro-rata as per the "Country Allocations" described below. Total transition finance points per hub based on evenly weighted average of (i-iii).
8. Funding Big Bets (Weighting: 4-15%). Points awarded to hubs pro-rata to US$ committed to date.
9. Digital Finance and Inclusion (Weighting: 4-10%). Points awarded to countries pro-rata their digitally included populations. Country points distributed to hubs pro-rata as per the "Country Allocations" described below.
10. Multi-Lateral Institutions, Thought Leadership and Levers of Change (Weighting: 4-10%). 15-point scale awarded to hubs prorated by their ranking.
11. Business Environment/Human Capital/Infrastructure (Weighting: 4-10%). Points awarded to hubs inverse to overall rank.

Hubs tied for positions shared the average points awarded for the total ranking slots they occupy.

Country Allocations

Country points are distributed to the financial hubs located within the respective countries. For countries with multiple hubs (China and US), points were awarded to major hubs pro-rata their respective scores on 'hub-driven' categories (Strength of Hub Asset Base, Scaling New Technologies and Businesses, Financial innovations, Strategic Decision Making, Funding Big Bets, Multi-Lateral Institutions, Thought Leadership and Levers of Change, and Business Environment/ Capital/ Infrastructure.) For the US country points were allocated: NYC 54.7%, Washington D.C. 17.6%, San Francisco 15.3%, Chicago 7.7%, Los Angeles 4.6%. For China allocations were Beijing 66%, Shanghai 23%, Shenzhen 11%. In categories in which the EU appears as a region in the main table, EU members countries were not awarded standalone points, and point allocated to the EU were distributed to the major EU financial hubs in the ranking pro-rata to their host country GDP, leading to the following allocation: Frankfurt 48%, Paris 34%, Amsterdam 11%, Stockholm 7%.

II. Limitations and Sensitivities

1. This analysis cannot predict where the leading financial hubs of the future will actually be located. It does however provide an indication of which assets, attributes, locations, and other factors are necessary to maintain or grow the relevance in the world over the next 30 years and therefore which hubs are likely to be best placed to succeed.
2. The relative weighting of the macro-factors over time turns out to be the more critical determinant of the outcomes laid out above than the actual growth assumptions used for these factors. For example, given the near certainty of China (and India's) continued relative rise and the significant gap in size between the four power blocs and the rest of the world, London's relative decline as a global financial centre is not reversed regardless of whether the UK's long term GDP growth rate is assumed to be 1% or 2% (although this would certainly have an impact on the UK itself!).
3. On the other hand, a 2.5% increase in the relative weighting of Factor 1: "Economic Power of Countries and Blocs" would see Beijing pass New York City as the world's leading financial hub in 2050.

III. Endnotes

[i] Source: https://sdgs.un.org/2030agenda
[ii] Source: Global Footprint Network
iii Source: Global Footprint Network
[iv] Source: World Resource Institute, Food Program
[v] Source: McKinsey
vi Source: McKinsey
vii Source: Bloomberg
viii Source: Cato Institute Center for Monetary & Financial Alternatives
ix Source: IRENA Global Renewables Outlook
x See the June 2020 Sign of the Times: The Coronavirus Pandemic Part III: The World Emerging from this Crisis
xi Sources: OECD and IRENA, numbers include some double counting of developing countries' clean energy investment needs through 2030, which are energy transition costs also captured by the SDG funding gap.
xii Source: https://www.forbes.com/sites/ronshevlin/2021/02/01/challenger-bank-chime-hits-12-million-customer-mark/?sh=544e3bd023f5

xiii For examples see the EIU Global Liveability Ranking, Mercer's Quality of Living Ranking, Monocle's Quality of Life Survey and Deutsche Bank's Liveability Surveys. Interestingly, when considerations like economic strength or GDP/Capita are included in the list of factors considered, like in the Global Finance 'World's Best Cities to Live In' list, London and New York rank second and fourth, respectively. me